CLAIMS

What is claimed is:

1. A method for predictively responding to network management data requests, the method comprising:

   populating a memory with prefetched response data based on whether one or more received requests matches a predetermined pattern, said pattern comprising one or more expected request and the periodicity of said one or more expected request, said response data comprising information prefetched from at least one subsystem on a managed network device; and

   sending a response comprising said prefetched response data if a received request matches said pattern and if said memory includes response data corresponding to said received request.

2. The method of claim 1 wherein

   said one or more received requests comprise Simple Network Management Protocol (SNMP) requests; and

   said response comprises a SNMP response.

3. The method of claim 2 wherein

   said SNMP requests comprise SNMP request Protocol Data Units (PDUs); and

   said SNMP response comprises a SNMP response PDU.

4. The method of claim 3 wherein

said pattern is identified by a pattern ID; and

said pattern ID comprises:

a community string;

a Network Management Station (NMS) IP address; and

a NMS port address.

5. The method of claim 3 wherein

said pattern is identified by a pattern ID; and

said pattern ID comprises a SNMP request ID.

6. The method of claim 1 wherein said populating comprises populating said memory in response to said one or more received requests matching said pattern.

7. The method of claim 1 wherein said populating comprises populating said memory in anticipation of said one or more received requests matching said pattern.

8. The method of claim 1 wherein said populating comprises populating said memory with prefetched response data for all expected requests in said pattern if a received request matches the first expected request in said pattern.

9. The method of claim 1 wherein said response data comprises information regarding a plurality of subsystems on said managed network device.

10. The method of claim 1 wherein said pattern comprises a plurality of expected requests.

11. The method of claim 1, further comprising configuring said pattern before said populating.

12. The method of claim 1 wherein said populating comprises:

prefetching response data for all expected requests in said pattern;

creating responses for said expected requests; and

storing said responses in said memory.

13. The method of claim 12 wherein said populating is performed periodically based on said periodicity such that valid prefetched response data is available upon receipt of a request for said response data.

14. The method of claim 12 wherein said prefetching comprises:

examining data requests in said pattern;

grouping said data requests according to the subsystem on said managed network device responsible for providing the requested data;

requesting said grouped data from the subsystem responsible for providing the requested data; and

receiving said grouped data.

15. The method of claim 1, further comprising indicating whether a response in said memory is valid based upon when the data for said response was collected.

16. The method of claim 15 wherein said sending further comprises sending said response if said prefetched response data is valid.

17. A method for predictively responding to network management data requests, the method comprising:

determining whether a trigger request has been received, said trigger request matching a first request in a pattern, said pattern comprising at least one expected request;

initiating periodic data collection if said trigger request is received, said data collection comprising populating a memory with response data corresponding to said at least one expected request, said response data comprising information obtained from at least one subsystem on a managed network device; and

sending a response comprising said response data from said memory if a received request matches an expected request in said pattern and if said memory includes response data corresponding to said expected request.

18. The method of claim 17 wherein

said trigger request and said received request comprise Simple Network Management Protocol (SNMP) requests;

said response comprises a SNMP response.

19. The method of claim 18 wherein

said SNMP requests comprise SNMP request Protocol Data Units (PDUs); and

said SNMP response comprises a SNMP response PDU.

20. A program storage device readable by a machine, embodying a program of instructions executable by the machine to perform a method for predictively responding to network management data requests, the method comprising:

populating a memory with prefetched response data based on whether one or more received requests matches a predetermined pattern, said pattern comprising one or more expected request and the periodicity of said one or more expected request, said response data comprising information prefetched from at least one subsystem on a managed network device; and

sending a response comprising said prefetched response data if a received request matches said pattern and if said memory includes response data corresponding to said received request.

21. The program storage device of claim 20 wherein

said one or more received requests comprise Simple Network Management Protocol (SNMP) requests; and

said response comprises a SNMP response.

22. The program storage device of claim 21 wherein

said SNMP requests comprise SNMP request Protocol Data Units (PDUs); and

said SNMP response comprises a SNMP response PDU.

23. The program storage device of claim 22 wherein

said pattern is identified by a pattern ID; and

said pattern ID comprises:

a community string;

a Network Management Station (NMS) IP address; and

a NMS port address.

24. The program storage device of claim 22 wherein

said pattern is identified by a pattern ID; and

said pattern ID comprises a SNMP request ID.

25. The program storage device of claim 20 wherein said populating comprises populating said memory in response to said one or more received requests matching said pattern.

26. The program storage device of claim 20 wherein said populating comprises populating said memory in anticipation of said one or more received requests matching said pattern.

27. The program storage device of claim 20 wherein said populating comprises populating said memory with prefetched response data for all expected requests in said pattern if a received request matches the first expected request in said pattern.

28. The program storage device of claim 20 wherein said response data comprises information regarding a plurality of subsystems on said managed network device.

29. The program storage device of claim 20 wherein said pattern comprises a plurality of expected requests.

30. The program storage device of claim 20, further comprising configuring said pattern before said populating.

31. The program storage device of claim 20 wherein said populating comprises:
prefetching response data for all expected requests in said pattern;

creating responses for said expected requests; and

storing said responses in said memory.

32. The program storage device of claim 31 wherein said populating is performed periodically based on said periodicity such that valid prefetched response data is available upon receipt of a request for said response data.

33. The program storage device of claim 31 wherein said prefetching comprises:

examining data requests in said pattern;

grouping said data requests according to the subsystem on said managed network device responsible for providing the requested data;

requesting said grouped data from the subsystem responsible for providing the requested data; and

receiving said grouped data.

34. The program storage device of claim 20 wherein said method further comprises indicating whether a response in said memory is valid based upon when the data for said response was collected.

35. The program storage device of claim 34 wherein said sending further comprises sending said response if said prefetched response data is valid.

36. A program storage device readable by a machine, embodying a program of instructions executable by the machine to perform a method for predictively responding to network management data requests, the method comprising:

determining whether a trigger request has been received, said trigger request matching a first request in a pattern, said pattern comprising at least one expected request;

initiating periodic data collection if said trigger request is received, said data collection comprising populating a memory with response data corresponding to said at least one expected request, said response data comprising information obtained from at least one subsystem on a managed network device; and

sending a response comprising said response data from said memory if a received request matches an expected request in said pattern and if said memory includes response data corresponding to said expected request.

37. The program storage device of claim 36 wherein

said trigger request and said received request comprise Simple Network Management Protocol (SNMP) requests;

said response comprises a SNMP response.

38. The program storage device of claim 37 wherein

said SNMP requests comprise SNMP request Protocol Data Units (PDUs); and

said SNMP response comprises a SNMP response PDU.

39. An apparatus for predictively responding to network management data requests, the apparatus comprising:

means for populating a memory with prefetched response data based on whether one or more received requests matches a predetermined pattern, said pattern comprising one or more expected request and the periodicity of said one or more expected request, said response data comprising information prefetched from at least one subsystem on a managed network device; and

means for sending a response comprising said prefetched response data if a received request matches said pattern and if said memory includes response data corresponding to said received request.

40. The apparatus of claim 39 wherein

said one or more received requests comprise Simple Network Management Protocol (SNMP) requests; and

said response comprises a SNMP response.

41. The apparatus of claim 40 wherein

said SNMP requests comprise SNMP request Protocol Data Units (PDUs); and

said SNMP response comprises a SNMP response PDU.

42. The apparatus of claim 41 wherein

said pattern is identified by a pattern ID; and

said pattern ID comprises:

a community string;

a Network Management Station (NMS) IP address; and

a NMS port address.

43. The apparatus of claim 41 wherein

said pattern is identified by a pattern ID; and

said pattern ID comprises a SNMP request ID.

44. The apparatus of claim 39 wherein said means for populating comprises means for populating said memory in response to said one or more received requests matching said pattern.

45. The apparatus of claim 39 wherein said means for populating comprises means for populating said memory in anticipation of said one or more received requests matching said pattern.

46. The apparatus of claim 39 wherein said means for populating comprises means for populating said memory with prefetched response data for all expected requests in said pattern if a received request matches the first expected request in said pattern.

47. The apparatus of claim 39 wherein said response data comprises information regarding a plurality of subsystems on said managed network device.

48. The apparatus of claim 39 wherein said pattern comprises a plurality of expected requests.

49. The apparatus of claim 39, further comprising means for configuring said pattern before said populating.

50. The apparatus of claim 39 wherein said populating comprises:

means for prefetching response data for all expected requests in said pattern;

means for creating responses for said expected requests; and

means for storing said responses in said memory.

51. The apparatus of claim 50 wherein said means for populating further comprises means for periodically populating said memory based on said periodicity such that valid prefetched response data is available upon receipt of a request for said response data.

52. The apparatus of claim 50 wherein said prefetching comprises:

means for examining data requests in said pattern;

means for grouping said data requests according to the subsystem on said managed network device responsible for providing the requested data;

means for requesting said grouped data from the subsystem responsible for providing the requested data; and

means for receiving said grouped data.

53. The apparatus of claim 39, further comprising means for indicating whether a response in said memory is valid based upon when the data for said response was collected.

54. The apparatus of claim 53 wherein said means for sending further comprises means for sending said response if said prefetched response data is valid.

55. An apparatus for predictively responding to network management data requests, the apparatus comprising:

means for determining whether a trigger request has been received, said trigger request matching a first request in a pattern, said pattern comprising at least one expected request;

means for initiating periodic data collection if said trigger request is received, said data collection comprising populating a memory with response data corresponding to said at least one expected request, said response data comprising information obtained from at least one subsystem on a managed network device; and

means for sending a response comprising said response data from said memory if a received request matches an expected request in said pattern and if said memory includes response data corresponding to said expected request.

56. The apparatus of claim 55 wherein

said trigger request and said received request comprise Simple Network Management Protocol (SNMP) requests;

said response comprises a SNMP response.

57. The apparatus of claim 56 wherein

said SNMP requests comprise SNMP request Protocol Data Units (PDUs); and

said SNMP response comprises a SNMP response PDU.

58. An apparatus for predictively responding to network management data requests, the apparatus comprising:

a request classifier to classify a request based on whether one or more received requests matches a predetermined pattern, said pattern comprising one or more expected request and the periodicity of said one or more expected request;

a lookahead processor coupled to said request classifier and operative to populate a memory with prefetched response data in response to a signal from said request classifier, said response data comprising information prefetched from at least one subsystem on a managed network device;

an interfacer coupled to said lookahead processor and operative to interface with said one or more subsystem on said managed network device to provide said response data; and

a sender coupled to said request classifier and operative to send a response comprising said prefetched response data if a received request matches said

pattern and if said memory includes response data corresponding to said received request.

59. The apparatus of claim 58 wherein

said one or more received requests comprise Simple Network Management Protocol (SNMP) requests; and

said response comprises a SNMP response.

60. The apparatus of claim 59 wherein

said SNMP requests comprise SNMP request Protocol Data Units (PDUs); and

said SNMP response comprises a SNMP response PDU.

61. The apparatus of claim 60 wherein

said pattern is identified by a pattern ID; and

said pattern ID comprises:

a community string;

a Network Management Station (NMS) IP address; and

a NMS port address.

62. The apparatus of claim 60 wherein

said pattern is identified by a pattern ID; and

said pattern ID comprises a SNMP request ID.

63. The apparatus of claim 58 wherein said lookahead processor is further configured to populate said memory in response to said one or more received requests matching said pattern.

64. The apparatus of claim 58 wherein said lookahead processor is further configured to populate said memory in anticipation of said one or more received requests matching said pattern.

65. The apparatus of claim 58 wherein said lookahead processor is further configured to populate said memory with prefetched response data for all expected requests in said pattern if a received request matches the first expected request in said pattern.

66. The apparatus of claim 58 wherein said response data comprises information regarding a plurality of subsystems on said managed network device.

67. The apparatus of claim 58 wherein said pattern comprises a plurality of expected requests.

68. The apparatus of claim 58 wherein said apparatus is further configured to initialize said pattern before said lookahead processor populates said memory.

69. The apparatus of claim 58 wherein said lookahead processor is further configured to: prefetch response data for all expected requests in said pattern;

create responses for said expected requests; and

store said responses in said memory.

70. The apparatus of claim 69 wherein said lookahead processor is further configured to populate said memory periodically based on said periodicity such that valid prefetched response data is available upon receipt of a request for said response data.

71. The apparatus of claim 69 wherein said lookahead processor is further configured to:

examine data requests in said pattern;

group said data requests according to the subsystem on said managed network device responsible for providing the requested data;

request said grouped data from the subsystem responsible for providing the requested data; and

receive said grouped data.

72. The apparatus of claim 58 wherein said apparatus is further configured to indicate whether a response in said memory is valid based upon when said interfacer collected the data for said response.

73. The apparatus of claim 72 wherein said sender is further configured to send said response if said prefetched response data is valid.